

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A handoff method performed by a mobile station in a wireless local area network, the method comprising the steps of:

outputting a handoff alert message to a present access point of the mobile station;

receiving channel information on access points in an extended service set from [[a]] the present access point of the mobile station in response to the handoff alert message; and

scanning, by the mobile station, channels on the access points by using the channel information to select a new access point of the mobile station, wherein the scanning channels comprises transmitting a probe request message to the access points using the channel information and receiving a response message in response to the probe request message; and

selecting an access point with a strongest signal as the new access point according to a scanning result.

2. (original): The method of claim 1, wherein the channel information corresponding to each access point of the access points in the extended service set comprises an address of the access point, information on a channel used by the access point, and information on one or more access points adjacent to the access point.

3. (currently amended): The method of claim 1, ~~further comprising outputting a handoff alert message to the present access point,~~ wherein the receiving of the channel

information comprises receiving a response message corresponding to the handoff alert message, the response message including the channel information.

4. (original): The method of claim 3, wherein the outputting of the handoff alert message comprises outputting the handoff alert message in response to receiving a weak signal from the present access point.

5. (currently amended): ~~A handoff method performed by a mobile station in a wireless local area network, the method comprising the steps of:~~

~~selecting a new access point;~~The method of claim 1, further comprising:
outputting a reassociation message to the new access point; and
receiving, by the mobile station, a reassociation response message from the new access point after a temporary connection is established between the new access point and a previous access point of the mobile station.

6. (canceled).

7. (withdrawn): A handoff method performed by an access point of a mobile station in a wireless local area network, the method comprising the steps of:

collecting, by the access point, channel information on access points in an extended service set in response to receiving a handoff alert message from the mobile station; and
outputting a response message corresponding to the handoff alert message to the mobile station, the response message including the channel information;

wherein the collecting channel information and outputting a response message occurs prior to selection of a new access point in the extended service set.

8. (withdrawn): The method of claim 7, wherein the collecting of the channel information comprises:

broadcasting handoff notification messages to the access points in the extended service set; and

receiving acknowledgement messages including the channel information from the access points in the extended service set.

9. (withdrawn): The method of claim 7, further comprising outputting an acknowledgement message including personal channel information in response to receiving a handoff notification message from a present access point of the mobile station.

10. (withdrawn): The method of claim 7, further comprising:
stopping services to the mobile station in response to a temporary connection being established with a new access point of the mobile station; and
outputting service data to the new access point through the temporary connection.

11. (withdrawn): A handoff method performed by an access point of a mobile station in a wireless local area network, the method comprising:
establishing, by the access point, a temporary connection with a previous access point of the mobile station in response to receiving a reassociation message;

outputting a reassociation response message corresponding to the reassociation message to the mobile station in response to establishing the temporary connection; establishing an optimum connection with the mobile station; and terminating the temporary connection with the previous access point in response to establishing the optimum connection.

12. (withdrawn): The method of claim 11, further comprising buffering data received from the previous access point through the temporary connection.

13. (withdrawn): The method of claim 12, further comprising stopping the buffering of the data in response to the reassociation response message being sent to the mobile station.

14. (withdrawn): The method of claim 11, wherein the establishing of the temporary connection comprises:

outputting a temporary connection request message to the previous access point; and receiving a temporary connection response message from the previous access point.

15. (withdrawn): The method of claim 11, wherein the terminating of the temporary connection comprises:

outputting a temporary connection termination request message to the previous access point; and receiving a temporary connection termination response message from the previous access point.

16. (currently amended): ~~A handoff method performed by a mobile station in a wireless local area network, the method comprising the steps of:~~

~~selecting, by the mobile station, a new access point by scanning channels according to channel information received from a present access point; and~~ The method of claim 1, further comprising:

reassociating with the new access point in response to a temporary connection being established between the new access point and the present access point.

17. (withdrawn): An access point performing a handoff with respect to a mobile station in a wireless local area network, the access point comprising:

a handoff alert message process unit which receives a handoff alert message and outputs a response message corresponding to the handoff alert message to the mobile station; and

a channel information collection unit which collects channel information on a plurality of neighboring access points in an extended service set, wherein the channel information is included in the response message.

18. (withdrawn): The access point of claim 17, further comprising a distributed service unit which stores the channel information.

19. (withdrawn): The access point of claim 17, wherein the channel information collection unit comprises:

a handoff notification message send unit which outputs a handoff notification message to collect the channel information on the access points in the extended service set; and

a handoff notification acknowledgement message receiving unit which receives a handoff response message from the access points, the channel information on the access points being provided by way of the handoff response message.

20. (withdrawn): The access point of claim 17, further comprising:

a reassociation message process unit which receives a reassociation message from the mobile station and outputs a response message corresponding to the reassociation message to the mobile station; and

a temporary connection/termination process unit which establishes a temporary connection with a previous access point of the mobile station using information included in the reassociation message and terminates the temporary connection in response to an optimum connection being established with the mobile station.

21. (withdrawn): The access point of claim 20, wherein the reassociation message process unit outputs the response message to the mobile station in response to the temporary connection being established.

22. (withdrawn): The access point of claim 20, further comprising an optimum connection search unit which establishes the optimum connection with the mobile station.

23. (withdrawn): An access point performing a handoff with respect to a mobile station in a wireless local area network, the access point comprising:

- a reassociation message process unit which receives a reassociation message and outputs a response message corresponding to the reassociation message to the mobile station; and
- a temporary connection/termination process unit which establishes a temporary connection with a previous access point of the mobile station using information included in the reassociation message.

24. (withdrawn): The access point of claim 23, further comprising an optimum connection search unit which establishes an optimum connection with the mobile station.

25. (withdrawn): The access point of claim 23, wherein the temporary connection/termination process unit terminates the temporary connection in response to an optimum connection being established with the mobile station.

26. (withdrawn): The access point of claim 23, wherein the access point buffers data received from the previous access point through the temporary connection.

27. (withdrawn): An apparatus for use in an access point performing a handoff with respect to a mobile station in a wireless local area network, comprising:

- a channel information collection unit which collects channel information on access points in an extended service set in response to a handoff alert signal; and

a temporary connection/termination process unit for establishing a temporary connection between predetermined access points subject to the handoff operation, in response to a reassociation signal.

28. (currently amended): A mobile station for use in a wireless local area network, comprising:

a handoff alert message process unit which outputs a handoff alert message to the present access point and receives channel information on access points different from a present access point in an extended service set in response to the handoff alert message, from the present access point; and

a scanning unit which scans for a new access point by using the channel information, wherein the scanning unit transmits a probe request message to the access points using the channel information and receives a response message in response to the probe request message; and

an access point selection unit which selects an access point with a strongest signal as the new access point according to a scanning result of the scanning unit.

29. (canceled).

30. (previously presented): The mobile station of claim 28, further comprising a distributed service unit which stores the channel information on the access points.

31. (currently amended): The mobile station of claim 28, wherein the handoff alert message process unit ~~comprises~~:

~~a handoff alert message send unit which outputs a handoff alert message to the present access point; and~~

~~a handoff alert acknowledgment message receiving unit which receives a response message corresponding to the handoff alert message, the channel information being included in the response message.~~

32. (currently amended): The mobile station of ~~claim 31~~claim 28, further comprising a signal strength detection unit which detects a signal strength of the access points, wherein the handoff alert message send unit outputs the handoff alert message in response to a predetermined signal strength of the present access point.

33. (previously presented): The mobile station of claim 28, further comprising a reassociation message process unit which establishes a reassociation with the new access point.

34. (currently amended): The mobile station of ~~claim 33~~claim 28, further comprising a reassociation message process unit which outputs a reassociation message including information on the present access point, and receives a reassociation response message from the new access point in response to a temporary connection being established between the new access point and the present access point.

35-37. (canceled).

38. (currently amended): A computer readable storage medium encoded with computer executable instructions for implementing a handoff method for a mobile station in a wireless local area network, performed by a computer, the method comprising:

~~receiving channel information on access points in an extended service set from a present access point of the mobile station; and~~

~~scanning channels on the access points by using the channel information to select a new access point of the mobile station; outputting a handoff alert message to a present access point of the mobile station;~~

~~receiving channel information on access points in an extended service set from the present access point of the mobile station in response to the handoff alert message;~~

~~scanning, by the mobile station, channels on the access points by using the channel information to select a new access point of the mobile station, wherein the scanning channels comprises transmitting a probe request message to the access points using the channel information and receiving a response message in response to the probe request message; and~~

~~selecting an access point with a strongest signal as the new access point according to a scanning result.~~

39. (currently amended): The computer readable medium ~~claim~~ of claim 38, further comprising outputting a handoff alert message to the present access point, wherein the receiving of the channel information comprises receiving a response message corresponding to the handoff alert message, the response message including the channel information.

40. (currently amended): ~~A computer readable medium encoded with operating instructions for implementing a handoff method for a mobile station in a wireless local area network, performed by a computer, the method comprising:~~

~~selecting a new access point; The computer readable medium of claim 38, the method further comprising:~~

outputting a reassociation message to the new access point; and
receiving a reassociation response message from the new access point in response to a temporary connection being established between the new access point and a previous access point of the mobile station.

41. (canceled).

42. (withdrawn): A computer readable storage medium encoded with computer executable instructions for implementing a handoff method for an access point of a mobile station in a wireless local area network, performed by a computer, the method comprising:

collecting channel information on access points in an extended service set in response to receiving a handoff alert message from the mobile station; and

outputting a response message corresponding to the handoff alert message to the mobile station, the response message including the channel information; wherein

the collecting channel information and outputting a response message occurs prior to selection of a new access point in the extended service set.

43. (withdrawn): A computer readable medium encoded with operating instructions for implementing a handoff method for an access point a mobile station in a wireless local area network, performed by a computer, the method comprising:

establishing a temporary connection with a previous access point of the mobile station in response to receiving a reassociation message;

outputting a reassociation response message corresponding to the reassociation message to the mobile station in response to establishing the temporary connection;

establishing an optimum connection with the mobile station; and

terminating the temporary connection with the previous access point in response to establishing the optimum connection.

44. (withdrawn): A method performed by a computer system for implementing a handoff of a mobile station in a wireless local area network, the method comprising the steps of: controlling, by the computer system, a channel information collection unit of an access point of the mobile station to collect channel information on access points in an extended service set in response to receiving a handoff alert message from the mobile station; and

controlling a handoff alert message process unit of the access point to output a response message corresponding to the handoff alert message to the mobile station, the channel information being included in the response message.

45. (withdrawn): A method performed by a computer system for implementing a handoff of a mobile station in a wireless local area network, the method comprising the steps of:

controlling, by the computer system, a temporary connection/termination process unit of an access point of the mobile station to establish a temporary connection with a previous access point of the mobile station in response to receiving a reassociation message from the mobile station; and

controlling a reassociation message process unit of the access point to output a response message corresponding to the reassociation message to the mobile station in response to establishing the temporary connection.

46. (withdrawn): The method of claim 45, further comprising:

controlling an optimum connection search unit to establish an optimum connection with the mobile station; and

controlling the temporary connection/termination process unit to terminate the temporary connection with the previous access point in response to establishing the optimum connection.

47. (withdrawn): A method performed by a computer system for implementing a handoff of a mobile station in a wireless local area network, the method comprising the steps of:

controlling, by the computer system, a channel information collection unit of an access point of the mobile station to collect channel information on access points in an extended service set in response to receiving a handoff alert message from the mobile station; and

controlling a temporary connection/termination process unit of the access point to establish a temporary connection with a previous access point of the mobile station in response to receiving a reassociation message from the mobile station.

48-50. (canceled).

51. (withdrawn): A computer readable storage medium encoded with computer executable instructions for storing channel information on access points in an extended service set, the data structure for storing the channel information comprising:

address information on respective access points in the extended service set;

information on channels used by the respective access points in the extended service set;

and

information on one or more access points adjacent to each of the respective access points in the extended service set; wherein

the channel information is provided to a mobile station to select a new access point during a handoff in a wireless local area network.

52. (withdrawn): An access point performing a handoff with respect to a mobile station in a wireless local area network, the access point comprising:

means for collecting channel information on access points in an extended service set in response to a handoff alert signal; and

means for establishing a temporary connection with a previous access point of the mobile station in response to a reassociation signal.

53. (canceled).

54. (withdrawn): An access point for use with respect to a mobile station in a wireless area network, the access point comprising:

a receiving unit which receives information on a neighboring access point from the neighboring access point adjacent to the access point; and
a storing unit which stores the information on the neighboring access point.

55. (withdrawn): The access point of claim 54, wherein the information comprises a basic service set identification (BSSID) representing a BSS identifier, an access point address of the neighboring access point, information on a channel used by the neighboring access point, and information on access points adjacent to the neighboring access point.

56. (withdrawn): The access point of claim 54, wherein the information on the neighboring access point is provided in a table format.

57. (withdrawn): The access point of claim 54, wherein the receiving unit extracts necessary information from a signal received from the neighboring access point, and based on the extracted information, the storing unit updates the information on the neighboring access point.

58. (withdrawn): A method for an access point for use with respect to a mobile station in a wireless local area network, the method comprising:

receiving information on a neighboring access point from the neighboring access point adjacent to the access point; and

storing the information on the neighboring access point.

59. (withdrawn): The method of claim 58, wherein the information comprises a basic service set identification (BSSID) representing a BSS identifier, an access point address of the neighboring access point, information on a channel used by the neighboring access point, and information on access points adjacent to the neighboring access point.

60. (withdrawn): The method of claim 58, further comprising extracting necessary information from a signal received from the neighboring access point and updating the information on the neighboring access point based on the extracted information.